

### Abstract

Using programmable resistance material for a matching resistor, a resistor trimming circuit is designed to reversibly trim a matching resistor to match a reference resistor. The programmable resistance materials such as metal-amorphous silicon metal materials, phase change materials or perovskite materials are typically used in resistive memory devices and have the ability to change the resistance reversibly and repeatably with applied electrical pulses. The present invention reversible resistor trimming circuit comprises a resistance bridge network of a matching resistor and a reference resistor to provide inputs to a comparator circuit for generating a comparing signal indicative of the resistance difference. This comparing signal can be used to control a feedback circuit to provide appropriate electrical pulses to the matching resistor to modify the resistance of the matching resistor to match that of the reference resistor.